

EDITORIAL ARTICLES.

WIRE SUTURING OF FRACTURE OF THE PATELLA AS AN IMMEDIATE METHOD OF TREATMENT.

The treatment of transverse fracture of the patella constitutes one of the most interesting subjects of practical surgery. In the *Lancet* for November 17, 1883. Dr. Macewen, of Glasgow, first called attention to a new point in the pathology of this injury, this constituting a most important departure from the usually accepted view. The point in question consisted in demonstrating the existence of more or less of the prepatellar fibrous and aponeurotic structures lying between and upon the surfaces of the fragments. To this he attributes the frequent failure of union.¹ In the opinion of the writer the whole question of the obtaining of osseous union on one hand, or of a fibrous connecting band between the fragments on the other, turns upon this as a pivotal point. With the exception of the very rare instances in which the almost phenomenal coincidence of a fracture of the variety under consideration occurs, in connection with the escape of the prepatellar aponeurotic structure from all damage, and in which the fragments can be brought together with comparative ease by mechanical force directly applied, such for instance as Malgaigne's hooks, or Levis's modification of the same, these conditions alone excepted, it may be stated, in general terms, that, where an indubitable instance of bony union occurs, it is regarded as one of the curiosities of surgical experience.

There can be no question as to the desirability of obtaining bony union. The statements of so eminent an authority as the late Prof. F. H. Hamilton to the contrary notwithstanding, the patient who has but a ligamentous union of a fractured patella, has not, in the experi-

¹See also ANNALS OF SURGERY for March of present year.

ience of most surgeons, a limb as perfect, functionally, as before. After many years, and when patients are apparently able to walk with perfect ease it will be found, upon causing them to attempt to perform such movements as are accomplished by the quadriceps extensor muscle exclusively, as for instance, the act of bringing the foot forwards with the knee held rigid, that they will not be able to perform this movement without bending the knee. Again, in cases of this kind, if the patient is placed in a recumbent position and requested to lift the limb from the bed without bending the knee, he will fail to do so. In other words, in these cases the quadriceps muscle is decidedly and permanently crippled in the performance of its principal function. It is true that in time the patient makes up for this deficiency by means of the psoas and adductors, and thus experiences no great difficulty in walking. He will be able, for instance, to mount a stair-case quite readily and in the ordinary way by having but one foot placed upon the stair at a time; but when he attempts to descend, he is usually compelled to have both feet at the same time upon the stair at each successive step. In this way alone, one may frequently detect the fact that ligamentous union exists following fracture of the patella. Patients may claim that they have perfect use of the limb, but either of the above tests will reveal an old fracture. These patients have learned in an unconscious manner to counteract the defect of contraction.

This condition of permanent disability may be due, in some measure, as pointed out by von Bergmann,² to an injury to the quadriceps muscle itself. In estimating the final result in transverse fracture of the patella, it is well to give due consideration to the possibilities of atrophy of this muscle and consequent progressively increasing inability to perform the normal movements of the leg. To this must be added the prolonged period of rest and the evil effects of tight bandaging incident to the prolonged use of splints and other retentive apparatus. There is reason to believe that this condition of the quadriceps interferes with the full use of the limb with much greater frequency than is generally supposed. Von Bergmann even goes so far as to as-

² See *Deutsch. Med. Wochens.*, Jan. 6, '87.

sert that the condition above alluded to (injury to the muscle, or atrophy from non-use), is to be held responsible for inability to extend the leg properly, after this fracture, in a larger proportion of cases than in complete consolidation. While there may be reason for questioning the full truth of this assertion, yet there can be no doubt that, if patients could be allowed to use their limbs at a much earlier period, markedly less disability would be present. The very feeling of instability due to ligamentous union will beget a fear to use the quadriceps extensor, and this latter in turn will become more and more inefficient, until the patient has finally learned to make his psoas and adductors functionate as extensors, in a measure; after which time the quadriceps will remain stationary, as regards the restoration of its function. On the other hand, an early restoration of the movements of the limb, and particularly that return of confidence in performing its natural movements consequent upon a restoration of its component parts to their normal relations to each other, will be the most certain method of preventing those evils mentioned by von Bergmann, the existence of which he has endeavored to turn as an argument against primary operations of suturing transverse patellar fracture.

No other result than that of bony union can be said to be a perfect one when osseous union is obtainable. In order to obtain this, measures must be taken to remove the interposed soft tissues from between the fragments, and bring the latter into firm apposition, and there maintain them. This can only be accomplished by making an incision into the joint, laying bare the bony surfaces, and where it is found impossible to disentangle the shreds of torn fibrous tissue from the rough surfaces and projecting spicules of bone, to remove a thin slice of bone from the opposing surfaces by means of the saw.

This discovery of Macewen's gives increased interest to the operation of opening the joint and applying the metallic suture in cases of this injury. As before stated, there cannot be two opinions as to the enormously great advantage which one patient, who has obtained bony union after a transverse fracture of this bone, has over another who has simply a ligamentous connecting band of variable length and stability between the upper and lower fragments. It is an equally indis-

putable fact that osseous union is obtainable with comparative ease in the hands of surgeons who possess sufficient boldness to carry into effect the measures necessary to obtain such a result. The indications for osseous union are therefore obvious, and the means of obtaining the same always at hand. It will be found in the great majority of cases that the only reason given for not attempting, in all instances of this injury, to obtain bony union in the first instance, is that all are not agreed in view of the fact that relatively good use of the limb is occasionally obtained by plans of treatment which involve no danger to life and limb, that the advantages gained in cases of osseous union are sufficiently great to offset the increased risk which the patient runs in obtaining the benefit of such a result.

In view of the fact that great reliance is now placed upon the use of antiseptic agents in order to ward off many, if not all of the dangers of this operation; and furthermore, as this part of our science and practice is at the present day making rapid strides, it is but fair to weigh with great regard the figures furnished by more recent writers upon the subject. It is the opinion of the writer, however, that but slight value can be placed upon the use of figures alone in this matter. The whole question will be determined upon the strictness with which individual surgeons follow antiseptic precautions in the treatment of wounds. A half-hearted antiseptis is worse than no antiseptis at all; many loopholes are left for error, and yet the claim will be made that the operations were performed antiseptically. It will always be found that in operations of this kind a surgeon's results will be favorable in direct proportion as he is well versed in antiseptic methods and is an enthusiastic supporter of the merits of the principle underlying the antiseptic system.

Prof. Dennis, of New York, has tabulated 186 cases of suturing transverse patellar fracture. Of this number, 75 are classified as being good as regards final result; 35 as being fair; 24 as poor. In this series 11 deaths are reported. Four suffered amputation, and 34 are stated to have had their recovery complicated with suppuration. Fourteen of those classed as being of poor result had complete ankylosis, while 17 of the cases denominated as fair had incomplete or partial ankylosis.

It should be stated in this connection that these figures do not represent the best work of those surgeons who practice aseptic or antiseptic surgery; they are collected from a variety of sources. It may be stated, as a general proposition, that the boldness which impels a surgeon to open the knee-joint and wire together the fragments of a fractured patella, is not always born of a perfect knowledge of those antiseptic measures which alone render such a procedure either safe or justifiable. In the 45 cases reported by Brunner,¹ it will be noted that only 18 pursued a strictly aseptic course. In 8 cases of this series the purulent inflammation assumed a dangerous character, two of them requiring subsequent amputation at the thigh; one of these latter terminated in death. In view of these well-known facts it is more than likely that if untoward results and their causes were to be summed up in one word, that word would be "sepsis." In the opinion of most surgeons of the present day, this latter is a preventible condition.

In view of these facts it will be for the surgeon to determine, in a given case, whether or not he has the requisite faith in and experience with, antiseptic methods and their power to prevent septic infection of the wound he is about to make. Certain it is, if any of the evil consequences following in the train of suppurative inflammation occur, they are to be traced to a want of sufficient care on the part of the operator or his assistants. The responsibility, therefore, of this operation should not be undertaken lightly, but once undertaken in the spirit of firm faith in, and a proper knowledge of the requisites of success and a careful application of the same, and the risks of this, as with many other operative procedures formerly considered unjustifiable, will be found reduced to a point where it will no longer be a source of alarm to the profession and laity alike.

Those who have had occasion to open the knee-joint many times must have been struck by the impunity with which this can be done, when strict antiseptics has been observed. This, to the writer, has been the source of much surprise and gratification. Patients have re-

¹*Deutsche Zeitschrift f. Chirurgie*, 1886, Bd. 23, S. 23. Also referred to by von Bergmann.

covered under his observation, notwithstanding rough and prolonged manipulation of the tissues comprising the articulation, without supuration or other unpleasant sequence. Moreover, there is frequently observed an absence of that inflammation of an adhesive character which sometimes leads to unpleasant after-effects when the time comes for making efforts to promote the healthy movements of the joint. To those whose almost daily habit it is to observe such instances of the wonderful improvements wrought in operative surgery by the introduction of the present methods of wound-treatment, it seems to be by no means a difficult or dangerous operation to open the knee-joint and place the fragments of a fractured patella under the condition necessary for the attainment of the best possible result in such an injury. The operation, in the hands of skilful and thoroughly competent surgeons, is destined to become shorn of all its dangers, both imaginary and real, as an immediate method of treatment; it will, without doubt, in the not very far future, supplant the uncertain and tedious means at the disposal of our forefathers, and in vogue, to a great extent, at the present day.

After what has been said regarding the justifiability of suturing the patella immediately following a simple fracture, it would be superfluous to attempt to use any argument in favor of treating, in a like manner, a compound fracture of this bone. Here the indications are so plainly in favor of immediate disinfection of the wound and restoration to their normal condition, as far as possible, of the fragments, that but slight sympathy, at this day, would be extended to a surgeon in the event of a suit for mal-practice being brought against him based upon his failures so to act.

GEORGE R. FOWLER.

ON THE CURE OF HÆMORRHOIDS BY EXCISION.

In connection with the experience of Dr. Lange, found on another page of this number of the *ANNALS OF SURGERY*, in the cure of hæmorrhoids by excision, the similar, and quite extended experience of Mr. Walter Whitehead, surgeon to the Manchester Royal Infirmary, England, will be of interest to note. The latter surgeon began the